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HQ AFCC SCOTT AFB IL//CC/LG//

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SUBJ: DSP MISSION AVAILABILITY

1. THIS RESPONDS TO USAF/RDS/X00 MESSAGE, 021325Z OCT 80 RE-

QUESTING SPECIFIC OPTIONS FOR DSP SYSTEM AVAILABILITY.

2. FROM MARCH TO JUNE OF THIS YEAR, CINCAD AND THE ASSISTANT SECRETARY OF DEFENSE (CSJ) HAVE EXCHANGED VIEWS ON THE RELIABILITY OF THE DEFENSE SUPPORT PROGRAM (DSP) AND THE TOTAL WARNING SYSTEM. ON 27 JUNE CINCAD POINTED OUT THAT THE NORAD COMPUTER SYSTEM/MISSION ESSENTIAL BACKUP (NCS/MEBU), BALLISTIC MISSILE EARLY WARNING SYSTEM (BMEWS) REARWARD COMMUNICATION SYSTEM (RCS), AND THE OVERSEAS GROUND STATION (OGS) OF THE DSP ALL WERE MAJOR CONTRIBUTORS TO THE LOSS OF WARNING DATA WHICH REQUIRE ATTENTION. THE EMPHASIS, FURTHER, MUST ADDRESS THE DURATION, FREQUENCY AND RECOVERY ASSOCIATED WITH DATA

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LOSSES. ADCOM AND SAC CONTINUE TO SUPPORT A BALANCED PROGRAM. THE QUESTION OF WARNING DATA AVAILABILITY SHOULD BE JUDGED AGAINST THE CRITERIA OF "AVAILABLE TO WHOM" AND "FOR WHAT PURPOSE." THE SOLUTION SHOULD THEN BE ADDRESSED IN A MANNER AND PRIORITY THAT RESOLVES OUR MOST CRITICAL PROBLEM FIRST. THE EFFORT CURRENTLY BEING ADDRESSED BY THE OSD STAFF FOCUSES ONLY ON OPTIONS FOR INCREASING DSP SYSTEM AVAILABILITY RELATED TO SENSOR OUTAGES (NUMBER AND DURATION). THIS IS A USEFUL APPROACH FROM A PROGRAMMATIC STANDPOINT, BUT THERE IS A CONTINUING NEED TO EXAMINE THE AVAILABILITY AND RELIABILITY OF OTHER SYSTEM ELEMENTS.

3. IN STUDYING THE DGS AVAILABILITY QUESTION, HISTORICAL DATA INDICATES THAT THE GREATEST DURATION OF DOWNTIME, AND THE GREATEST PERCENTAGE LOSS OF SENSOR DATA, OCCURS FROM ANTENNA MAINTENANCE PERIODS. THIS IS ALSO TRUE FOR THE CONUS GROUND STATION (CGS). THE NEXT MOST SEVERE OUTAGE PERCENTAGE RESULTS FROM HALTS IN DATA PROCESSING. TO RESOLVE THESE WARNING DATA LOSSES REQUIRES ADDITIONAL ANTENNAS AND INCREASED PARALLEL DATA PROCESSING AT EACH SITE, PLUS DATA PROCESSING AT PARALLEL SITES TO AVOID COMMON FAILURE CONDITIONS (I.E., POWER PLANT FLUCTUATIONS, COMMUNICATION, ETC).

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5. BASED ON THIS EXAMINATION, THE FOLLOWING ACTIONS ARE RECOMMENDED. OPTIONS CONSIDERED FOR INCREASING AVAILABILITY OF DSP WARNING DATA REQUIRED THE SIMPLIFIED PROCESSING STATION (SPS) b1
THE SPS IS THE ONLY RESOURCE AVAILABLE TO FULLY BACKUP THE OVERSEAS

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NO

GROUND STATION (OGS) FOR PARALLEL OPERATIONS AND FOR THE PERIOD DURING
THE UPCOMING COMPUTER CHANGEOUT.

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THE DESIRED OPTION DEFINES NEAR TERM SOLUTIONS AND IMPROVEMENTS PROGRAMMABLE IN THE MID AND FAR TERM. PARAGRAPH 6 WILL ADDRESS COST AND SCHEDULES.

A. NEAR TERM. THESE ACTIONS CAN BE SUSTAINED FOR A LIMITED TIME AND ARE PREDICATED ON THE COMPLETION OF THE MID AND FAR TERM SOLUTIONS.

(1) INCREASE THE OVERSEAS GROUND STATION (OGS) PARALLEL
COMPUTER TIME b1 THIS PROVIDES INCREASED WARNING
DATA FOR OUTAGES CAUSED BY COMPUTER ABENDS OR MALFUNCTIONS.

b1

LOSS OF OFF-LINE COMPUTER UTILIZATION AND OPERATIONAL TRAINING TIME WILL RESULT.

(2)

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(3) INCREASE THE CGS PARALLEL COMPUTER TIME. THIS WILL
MAXIMIZE PARALLEL PROCESSING!

b1

LOSS OF OPERATIONAL TRAINING AND SOFTWARE DEVELOPMENT TIME WILL OCCUR.

(4)

b1

THE MAJOR IMPACT WILL BE REDUCED TRAINING FOR 3 LEVEL MAINTENANCE PERSONNEL.

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8. MID TERM

(1)

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b1

IT WILL PROVIDE AN ON-SITE RESOURCE WITH MINIMAL IMPACT TO SCHEDULING AND COORDINATION OF SYSTEM RESOURCES. AN OGS ANTENNA IS REQUIRED FOR ALL OPTIONS b1

BOTH THE SPS AND OGS SECOND ANTENNA ARE NEEDED TO MAINTAIN MAXIMUM PARALLEL PROCESSING b1

(2) ATTAIN AN SPS INITIAL OPERATIONAL CAPABILITY (IOC) BY APPROXIMATELY 2 FEB 81. A PHASE II FOLLOW-ON OPERATIONAL TEST AND EVALUATION (FOT&E) WILL BE CONDUCTED DURING DEC 80/JAN 81. UPON SUCCESSFUL COMPLETION OF FOT&E AND DECLARATION OF IOC, THE SPS SHOULD b1

PROVIDE BACKUP AND PARALLEL OPERATIONS FOR THE OGS. PARALLEL PROCESSING OF b1

OR A FULL 24 HOURS EACH DAY WOULD BE EXPECTED. b1

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NO

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(4) REDUCE SYSTEM RECOVERY TIME. THE PRESENT SOFTWARE WILL BE EXAMINED TO DETERMINE IF WE CAN REDUCE THE TIME REQUIRED TO RECOVER FROM ABENDS OR MALFUNCTION SITUATIONS.

C. LONG TERM.

(1) LPS UPGRADE. THE LPS UPGRADE SHOULD BE MODIFIED TO ADD ONE OGS AND TWO CGS COMPUTER STRINGS. PARALLEL DATA PROCESSING OF SATELLITE DATA STREAMS IS REQUIRED TO AVOID UNSCHEDULED OUTAGES OF WASHING DATA. IN ADDITION, WE SHOULD INCLUDE THE UPGRADE OF PERIPHERALS AND OPERATING SYSTEM (OS) SOFTWARE. ~~THE SPEED AND FLEXIBILITY~~ INHERENT IN THE NEW 3033 COMPUTERS CANNOT BE USED TO FULL ADVANTAGE WITH THE SLOWER TAPEDRIVES, PRINTERS, DISKS AND OS SOFTWARE. SIGNIFICANT IMPROVEMENTS IN COMPUTER RECALL COULD BE ACHIEVED WITH UPGRADED PERIPHERALS AND OS SOFTWARE. IF NECESSARY, THE OS SOFTWARE UPGRADE WILL BE SCHEDULED FOR COMPLETION IN THE POST LPSU TIMEFRAME.

(2)

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(S) COST AND SCHEDULE (U).

ACTION

SCHEDULE

COST IN FY 80 *

S.A. (1) INCREASE OGS PARALLEL

IMMEDIATE

NONE

COMPUTER TIME b1

b1

b1

S.A. (3) INCREASE CGS PARALLEL

IMMEDIATE

NONE

COMPUTER TIME.

S.A. (4) INCREASE CGS ANTENNA

IMMEDIATE

NONE

UPTIME.

b1

b1

b1

S.B. (4) REDUCE SYSTEM RECOVERY

STUDY RESULTS UNKNOWN

TIME

3 JAN 81.

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NO

S.C.(1) ADD ADDITIONAL CPU STRING
AND REPLACE ALL PERIPHERALS AT OGS
AND CGS (DOES NOT INCLUDE AFLC
COSTS: CONSTRUCTION, POWER AND AIR
CONDITIONING COST AND DELAYS).

SEP 83 CGS 10M AT CGS
FEB 84 OGS 10M AT OGS

S.C.(2) GCN III

FY 83 NO ADDITIONAL
COSTS

7. (U) OTHER CONSIDERATIONS.

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B.

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8. THIS IS A COMBINED ADCOM, SAC RESPONSE.

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